Water systems depend on pressure to keep water flowing in the proper direction. Water distribution systems are designed so that the pressure is greater in the lines delivering the water than the pressure on the property side of the water meter. However, when there is a drop in water pressure on the city's side, a reverse flow can occur. This is called backflow. When this happens it is possible for unsanitary water from the customer's plumbing system to get sucked back into the public water system. If the water in the customer's system has come into contact with harmful substances and it backflows into the municipal drinking water system, it could cause illness or, in extreme cases, death.

The City of San Diego Public Utilities Department is working hard to ensure its drinking water system remains safe. We require backflow prevention devices where they are mandated by law, and we work with customers to eliminate any potential cross-connections in our customers' plumbing that, unprotected by a backflow prevention device, could lead to dangerous situations.

Here are some answers to commonly asked questions about the Public Utilities Department's Cross-Connection and Backflow Prevention Programs:

## Who is required to have a backflow prevention assembly?

Most multi-family, as well as all commercial and industrial properties and irrigation meters are required to have a backflow prevention assembly. Most single-family residences are not required to have one.

## How can I help prevent a dangerous backflow situation?

You can help by working with the City of San Diego Public Utilities Department's Cross-Connection Control Program. Our Program, which is required by the State Department of Health Services Drinking Water Program, is a combined effort between the City's plumbing inspectors and the cross-connection inspectors. It includes the elimination or protection of all cross-connections by approved methods or the protecting of the municipal drinking water system by the installation of approved backflow prevention assemblies. The different types of approved methods or backflow prevention assemblies used are based on what is known as "the degree of hazard." With an understanding of the hazards associated with potential cross-connections and backflow, you can help us protect our drinking water.

## What is a backflow assembly?

Backflow assemblies are devices placed on potential cross-connections to prevent water from flowing back into the public water system. The most common type of backflow assembly is a Reduced Pressure Assembly Valve. To ensure they work correctly, all backflow assemblies must be tested annually with the exception of atmospheric vacuum breakers.

## Do backflow incidents really happen?

Yes! Here are just three examples:

- **Worms from Irrigation System.** Residents found parasitical worms (nematodes) in their water after the atmospheric pressure breaker malfunctioned on a privately owned underground sprinkler system. During a water pressure drop, the vacuum in the system sucked some water from the sprinkler into the city water. The homeowner found worms swimming in the bathtub while filling it to bathe his child.

- **Insecticide from Garden Hose.** The highly toxic insecticide chlordane was back-siphoned into the water system. An extermination company employee had left one end of a garden hose in a barrel of diluted insecticide and the other connected to an external home hose bib (outside spigot). When the water supply system pressure dropped due to repair work, the chlordane was sucked back through the house into the water system.

- A resident called in to complain that the tap water was pink, after an estimated 2,000 gallons of **water mixed with car wax** got into the city's drinking-water supply. City staff traced the problem to a car wash. The facility had been using a pressure washer to clean out pipes as part of maintenance work on its plumbing.

## Why do I have to install a backflow prevention assembly?

To protect the customers of public water providers, the Environmental Protection Agency Safe Drinking Water Act, State Department of Health Services, City of San Diego Public Utilities Department and Uniform Plumbing Code each require customers to equip all potential cross-connections with a backflow prevention assembly. Therefore, the City of San Diego Public Utilities Department has adopted codes that regulate cross-connections.

## Does my backflow assembly need to be tested?

Yes. The City of San Diego Public Utilities Department requires that a certified tester check all backflow assemblies at the time of installation, annually after installation, after repairs and after relocating. Backflow assembly testers are private contractors who must submit a report to the Public Utilities Department following the test. A list of certified testers is available on the Public Utilities Department's website at www.sandiego.gov/water/gen-info/ccbackflow.shtml.

## What happens if I do not test a backflow assembly that I have received a notification to test?

If for some reason you do not test your backflow assembly you may be cited and fined for non-compliance. Also, your water service may be terminated to protect the public water system.

## Where are the most common cross-connections found?

Whenever a plumbing fixture is connected to the drinking water supply, a potential cross-connection exists. Some examples of cross-connections that can lead to backflow are:

- Wash basins and service sinks
- Laboratory equipment
- Irrigation or lawn sprinkler systems
- Swimming pools and spas
- Solar heat systems
- Fire sprinkler systems
- Auxiliary water supplies (wells, storage tanks and second feeds)
- Photo developing equipment
- Chemical feed equipment
- Attachment to hoses to apply weed killer or fertilizer or to flush antifreeze
- Food and beverage processing equipment
- Ornamental fountains
- Boilers
- Hose bibs

## Mandating Authorities

There are several Mandating Authorities regarding Cross-Connections and Backflow Prevention. The Federal Safe Drinking Water Act of 1974 provides jurisdiction over the public health aspects of the drinking water supply as does the California Water Code, Chapter 1, Section 110, Chapter 8, Section 500 and Chapter 723, Sections 13533, 13554.2 and 13554.3. See also, the Code of California Regulations (CCR), Title 17 and Title 22; California Plumbing Code (CPC); and the City of San Diego Municipal Code (SDMC), Chapter IV, Article 4, Section 44.0114 and Chapter VI, Article 7, Section 67.0202.

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

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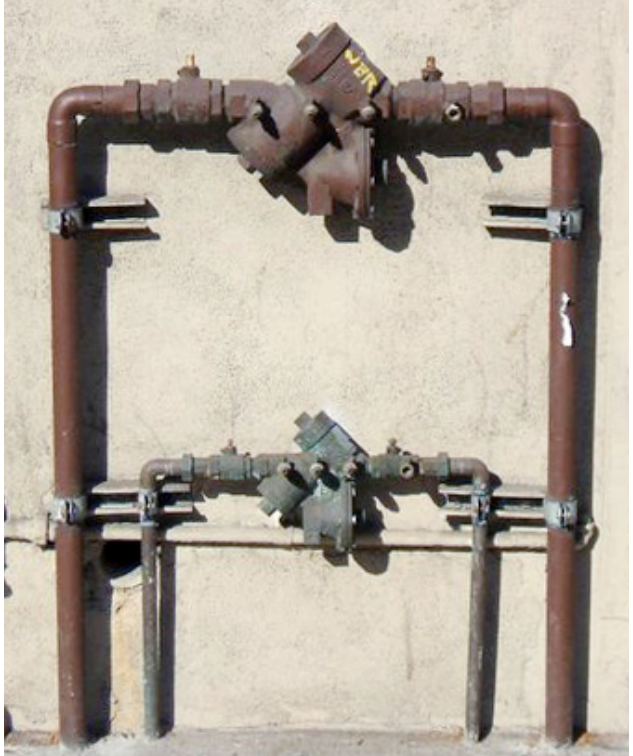
THE CITY OF SAN DIEGO

# Protecting our Drinking Water



## Backflow Prevention and Cross-Connection Program

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